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DualBurn
CDR-882 DUAL DRIVE CD RECORDER

COMPACT disc DIGITAL AUDIO Recordable ReWritable

v2.00
User Manual Addendum
March 2009

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1 CDR-882 v2.00 Firmware

We are delighted to announce v2.00 firmware for the HHB CDR-882 DualBurn. It extends to capabilities of the recording to full multi-machine and contains major enhancements and improvements that you will find increase the functionality and features of the CDR-882.

1.1 Summary

- Independent recording on both drives
- "Zero overlap" DiscSpan
- Software-adjustable analogue output level
- Disable DiscSpan auto-finalize and auto-eject
- Full Multi-machine support is now implemented
- New track created from REC / PAUSE
- Timer RECORD and Timer Sync RECORD
- Direct track access when tray open
- Other enhancements and bug fixes:
  - New Parallel control functions
  - Restore factory defaults
  - Auto-Pause and Auto-Cue bug fixed
  - Sync Record from DAT improved
  - Track IDs now from Minidisc now recognised via S / PDIF
  - Audio Threshold Sync Record from S / PDIF input improved
  - Time interval Track ID generation and DiscSpan
  - Headroom monitor improved
  - Record MODE and Auto-cue / pause status stored and recall after power on / off
  - Program Play improvements
  - CD subcode is now transmitted from the S / PDIF outputs
  - CD Copy Speed selections changed
  - Improved front panel key response
  - Display improvements

These features are described in more detail later in this document

1.1.1 Firmware upgrade

The new firmware can be downloaded from the DualBurn section of the HHB website - www.dualburn.com. It is available as an embedded .wav file or as a disc image. Update instructions are contained in the user manual

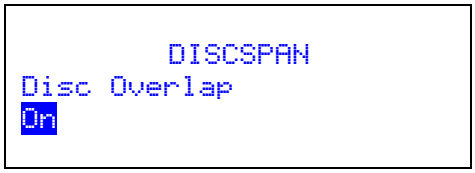
1.2 Independent recording on both drives

It is now possible to record independently on the two drives. Both drives will record the same audio source. This means that the entire programme may be recorded onto the first drive, whilst and edited version of the programme is created "on-the-fly". Please note the following features and restrictions:

- The recording mode must be SINGLE
- Either drive can operate as the "primary" drive, which is the drive on which the recording is first started.
- The primary drive can operate in full SYNC RECORD with auto-generated Track IDs, as well as manual RECORD. The secondary drive may operate only in manual RECORD. New tracks on the secondary drive can therefore be created by pressing the ID WRITE button or via REC / PAUSE, which now will create a new track (see section)
- Track ID and transport control of each drive is directed via the DRIVE SELECT button

1.3 “Zero overlap” DiscSpan

DiscSpan mode allows seamless recordings to be made that are longer than one CD. This feature is now enhanced with the addition of a Zero Overlap. This is controlled by a setting in the DISCSPAN section of the menu:



In fact, there is still a short overlap of one second, but no track markers are created at the start / finish of the fades and overlap area. The discs will fade up / down either side of this point

Note that track ID requests will be ignored within 3 seconds of the changeover point (since tracks must be at least 4 seconds in length)

1.4 Software-adjustable analogue output level

It is now possible to adjust the nominal level of the analogue outputs from the menu. This allows the output level to be calibrated easily to match different global standards, e.g., for 0dBFS:

- ‘ 0 dB’ = 22dBu (maximum)
- ‘-4 dB’ = 18dBu (BBC)
- ‘-10 dB’ = 12dBu (Germany)

The maximum output level from the balanced XLR connectors is 22dBu. This may be adjusted from 0dB to -10dB in 1dB increments from the AUDIO section of the menu:

Note that the unbalanced audio outputs are also adjusted, but the digital S / PDIF and AES outputs are not.

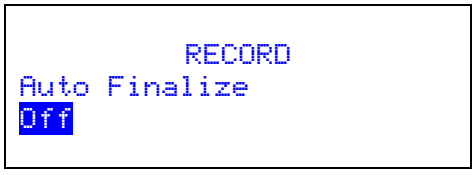
1.5 Disable DiscSpan auto-finalize and auto-eject

It is now possible to disable both the auto-finalise and auto-eject feature of the DiscSpan recording mode.

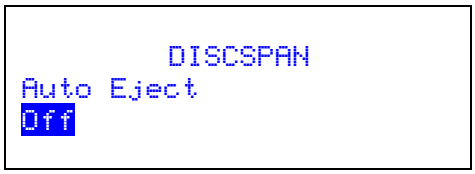
By disabling auto-finalise, it is possible to add CD Text to the disc at the end of the DiscSpan recording. Any Album Title or Artist text entered into the MASTER is instantly copied to the SLAVES. The trays therefore will not auto-eject when auto-finalise is disabled

The Disable auto-eject is simply to prevent the trays causing an obstruction in the event of an unaccompanied DiscSpan recording. This setting is only relevant if Auto-Finalise is enabled.

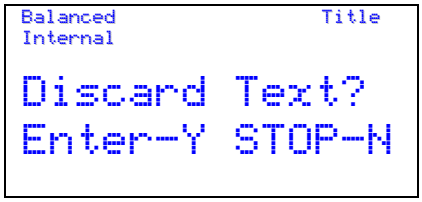
Auto-finalize for DiscSpan is now under the control of the pre-existing Auto-Finalize page of the RECORD section of the menu:



Auto-eject control is only relevant to DiscSpan, and hence may be found in the DISCSPAN section of the menu:



Note that if you try and eject an unfinalized disc for which CD Text has been entered, you will first be warned that the CD Text will be lost with the following message:



To continue to eject the disc, press ENTER. Stop will cancel the eject command and the warning message.

1.6 Full Multi-machine implementation

The Multi-Machine functionality of the CDR-882 is now fully implemented. This allows you to make up to eight identical discs (in Multi-DualBurn mode) or a single long recording or nearly 640 minutes across eight discs (in Multi-DiscSpan mode)

Please refer to the “Multi-Machine Operation” of the user manual for more details. However, please note the following changes to the described operation:

The default setting in the DISCSPAN section of the menu for Multi-machine status and Master / Slave and is “ON” and “SLAVE” respectively. This means it is only necessary to change one CDR-882, the MASTER, in a multi-machine setup. Once changed, the settings remembered the next time the recorder is switched on. The process to configure the master unit, after connecting the serial and audio cables as described in the manual, is:

- Change DISCSPAN =>Multi-Machine to OFF
- Change DISCSPAN=>Master / Slave to MASTER
- Change DISCSPAN / Multi-Machine to ON

Control of the setup is generally done from the MASTER. However, the front panel of the SLAVE recorders remains active, with the exception of the MENU (and some other) button which is locked out

The MENU settings made in the MASTER are copied to the SLAVES, including the Track ID trigger sources, Audio Thresholds and Time Interval settings.

NOTE: If using Sync RECORD mode in Multi-Machine, think carefully about the start and Track ID trigger sources, and what the actual input source is for each machine, e.g:

- The MASTER is recording from an analogue input, but the SLAVES are all linked with S / PDIF coax from the MASTER (obligatory for Multi-DiscSpan). Now, the default trigger source for analogue inputs is Audio Threshold. However, unless you actually change the trigger sources in the MASTER menu system to “Audio Threshold”, the SLAVES will stay on subcode for their selected S / PDIF input, but since the MASTER is recording from analogue, there will be no subcode (subcode is either passed through from the selected S / PDIF input, or read from a CD in playback).

The SLAVE recorders will not respond directly to IR remote commands whilst Multi-Machine mode is enabled. In Multi-DualBurn, commands are effectively relayed via the MASTER anyway, however in Multi-DiscSpan it's not possible to write Track IDs from the IR remote (or via RS232 or parallel port) once the recording has passed to the SLAVE recorders

1.6.1 Multi-DualBurn

Operation is as described in the user manual. For full redundancy operation, audio connections do NOT have to be cascaded from the MASTER. For this reason, the user may select any input source on the SLAVES. Also, note that the logic controlling Sync Record and Auto Track ID generation is done locally in each recorder.

1.6.2 Multi-DiscSpan

For Multi-DiscSpan operation, it is essential that the audio is connected from MASTER to SLAVE 01 (and SLAVE 01 to SLAVE 02, etc) using coax S/PDIF connections since it is used to ensure frame-accurate changeover from one machine to the next and also to ensure the sample clocks are all synchronous

To monitor the recording of playback of a Multi-DiscSpan recording, the audio output of the last SLAVE in the setup should be used. Audio is seamlessly passed from the MASTER via the SLAVE throughout the recording or playback.

CD Text is used to identify discs in a DiscSpan recording. Any CD Album Title or Artist added into the MASTER will be duplicated on all discs, but prefixed with "Multi-xx :" where xx corresponds to the number of the disc in the sequence. This is the same as single-machine DiscSpan (note that the "Multi-xx :" CD Text actually occupies the beginning of the Title field, not the end as described in the user manual)

1.6.2.1 Some notes regarding Multi-DiscSpan

- During a Multi-DiscSpan recording, once the recording has been handed over from the MASTER to the first SLAVE (or from any SLAVE onwards), care should be taken NOT TO COMMENCE PLAYBACK ON THE MASTER (or SLAVES that have finished recording), SINCE THIS WILL INTERRUPT THE AUDIO BEING RECORDED ON THE OTHER SLAVE RECORDERS! Also note that the MASTER recorder only responds to IR remote commands. In addition, DO NOT press STOP on any recorder that has finished as this will stop the recording also.
- All discs, with the exception of the disc in drive 1 of the MASTER, MUST be blank. The recorder will not go into REC/PAUSE if this is not the case

1.7 New track created from REC/PAUSE

If the recording enters REC/PAUSE for any reason at any stage (although it cannot within 4 seconds of the start of a new track or recording), a new track is created should the recording be restarted.

A recording will enter REC/PAUSE if:

a. The PLAY/PAUSE button is pressed
b. A Sync Recording is in progress using S/PDIF subcode and the audio level drops to digital silence for more than 5 seconds
c. A Sync Recording is in progress using Audio Threshold and the audio level drops below the threshold for more than 5 seconds

A recording will restart from REC/PAUSE if (and a new track created):

- The PLAY/PAUSE button is pressed again
- In (b) above, the new track is detected on the incoming S/PDIF subcode
- In (c) above, the audio level rises above the threshold

1.8 Timer RECORD and Timer Sync RECORD

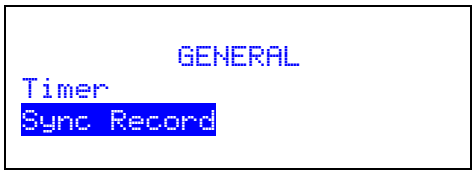
TIMER PLAY has been enhanced with the addition of TIMER RECORD and TIMER SYNC-RECORD.

Assuming the recorder has been setup correctly beforehand with recordable discs, audio inputs selected and the record level set, when power is introduced the CDR-882 will start recording:

a. In TIMER RECORD, the recorder will go through the REC SETUP process and then go straight into RECORD
b. In TIMER SYNC-RECORD, the recorder will go through the SYNC SETUP process and then wait in REC / PAUSE for the Start Trigger criteria to be met. If the Start Trigger is Audio Threshold and Audio is already present, then it will immediately go into RECORD

These features are added to the TIMER page of the GENERAL section of the menu. The options are:

- Off⇔Play⇔Record⇔Sync Record:



Remember with TIMER PLAY to check that Auto-Cue and Auto-Pause are not enabled, since these are recalled after power on and the unit will simply cue up in PAUSE mode!

1.9 Direct track access when tray open

It is now possible to select tracks to play directly from the remote control, including tracks greater than 10, when the tray door is open. The display will show what track you are selecting and as soon as the selection is complete, the tray will close, the disc will load and will play from the selected track, subject to Auto-Pause and Auto-Cue selections. Note if an illegal track is selected (i.e., a track number higher than what is on the disc), playback will be aborted and the disc will stay in STOP mode.

1.10 Other enhancements and bug fixes

1.10.1 New Parallel control functions

It is now possible to map the following commands to any parallel input:

a. DRIVE SELECT
b. Track ID WRITE – this is actually an extension to the RECORD function mapping. If a unit is in RECORD and MANUAL ID mode, sending the parallel RECORD command will create Track ID. This duplicates a function that was available on our earlier CD recorder model

1.10.2 Restore factory defaults

Available from the GENERAL page of the menu, this simply allows the CDR-882 to be reset to the factory condition:

1.10.3 Auto-Pause and Auto-Cue bug fixed

A bug that prevented the track cueing in PAUSE at the start, or at the start of the audio, when accessed via the AMS± and ENTER controls has been fixed

1.10.4 Sync Record from DAT

To prevent erroneous track IDs being generated from poor quality DAT tapes, which may drop out and reset the output sample-rate of the DAT player, Sync Recording via S/PDIF subcode, with auto Track ID, is now only possible if the DAT is recorded at 44.1kHz. Other samples rates can be recorded but their Track IDs will not be recognised.

Note that DAT Start IDs received by the CDR-882 are not re-transmitted on the S/PDIF output. Therefore, any recorder connected to the CDR-882 output will not see the received DAT Start IDs.

1.10.5 MiniDisc Track IDs

MiniDisc Track IDs are now recognised meaning it is now possible to do a Sync Recording with auto Track IDs from MiniDisc via S/PDIF

1.10.6 Audio Threshold Sync Record from S/PDIF input improved

When using Audio Threshold as the Sync Recording trigger from S/PDIF, it would only enter REC/PAUSE after 5 seconds of digital silence, rather than 5 seconds below the audio threshold. This has now been corrected.

1.10.7 Time interval Track ID generation and DiscSpan

A bug which prevented Time Interval auto Track ID from working correctly in DiscSpan has been fixed

1.10.8 Headroom monitor improved

The numeric indication of input level now no longer operates in a permanent peak-hold mode, except when actually recording. Therefore, it is possible to use it to accurately calibrate the input level by selecting the INPUT MONITOR when in STOP.

Note that during RECORD, the peak-hold feature will enable. Therefore, it is possible to check what the highest input level was during that recording. At the end of the recording, the peak-hold will not be cleared, whilst in STOP, until the STOP, PLAY, EJECT, MONITOR or I/P SELECT keys are pressed

1.10.9 Parameters recalled after power on/off

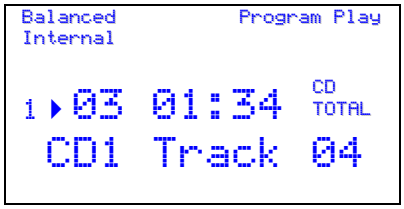
The status of Auto-Cue and Auto-Pause are now stored and recalled after power on/off.

In addition, the record mode (i.e., Single, DualBurn, DiscSpan) is also stored and recalled after power on/off

1.10.10 Program Play improvements

The operation of the Program Play function has been improved:

- It now plays programmed tracks correctly from both drives
- Whilst on the program entry window, pressing STOP will on clear the last stored entry rather than the whole list
- Auto-Cue and Auto-Pause are now available during Program Play
- Whilst playing the Program, the “track” number actually displays the position of the current track in the playlist.
- The bottom line of the display now indicates what track is currently playing and from what drive:



1.10.11 CD subcode is now transmitted from the S/PDIF outputs

The S/PDIF coax and optical outputs now carry CD track & time and absolute time information. This includes both from playback, and pass-through of subcode received at the S/PDIF inputs, if selected.

Note that the subcode at the output will relate to the audio that is also routed to the outputs, i.e., CD1, CD2 or input monitor. In situations where the audio is mixed from two of these three possible sources, no subcode will be output.

1.10.12 CD Copy Speed selections

The RECORD section of the menu allows selection of Low, Medium and High for the CD Copy Speed. The actual speed is dependent on the disc/drive combination but in general:

- Low – 4x, or lowest speed possible for disc/drive
- Medium – 12x, or closest compatible speed
- High – fastest possible

Note that the combined read and write speed of the CD copy process is also dependent on how fast data can be read from the source drive.

1.10.13 Improved front panel key response

The front panel key handler has been improved. For example, it is now possible to press both eject buttons at the same time to eject both drives.

1.10.14 Display improvements

There have been several small improvements to how information is shown on the front panel display:

- Display will now show FADE-IN or FADE-OUT as appropriate on the bottom status line if the FADER button is pressed during RECORD or PLAY
- If CD Text is displayed, the top right of the display shows Title, Artist or Track as appropriate. If the MODE button is pressed, the MODE (Single, DualBurn, DiscSpan) is now displayed instead for one second, and then reverts back to indicate the selected CD Text field.
- A bug which meant the track field would flash continuously has been fixed
- Various bugs which would result in screen corruption have been fixed